

## EAST Search History

## EAST Search History (Prior Art)

| Ref # | Hits | Search Query  | DBs   | Default Operator | Plurals | Time Stamp          |
|-------|------|---|---|------------------|---------|---------------------|
| L1    | 771  | finger\$print with environment \$4  | US-PGPUB;<br>USPAT  | OR               | ON      | 2009/07/08<br>14:03 |
| L2    | 9    | finger\$print with environment \$4 with effect  | US-PGPUB;<br>USPAT  | OR               | ON      | 2009/07/08<br>14:03 |
| S1    | 1612 | authentica\$ and robustness criteri\$   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/08<br>16:00 |
| S2    | 8    | authentica\$ and robust\$ adj criteri\$   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/08<br>16:01 |
| S3    | 1    | authentica\$ and robust\$ adj criteri\$ and<br>@pd<="20040513"  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/08<br>16:03 |
| S4    | 2438 | authentica\$ same biometric and @pd<"20040513"  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/08<br>16:07 |
| S5    | 680  | authentica\$ same biometric and cryptograph\$ and<br>@pd<"20040513"   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/08<br>16:15 |
| S6    | 711  | authentica\$3 same biometric and crypt\$8 and<br>@pd<"20040513"   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/09<br>07:22 |
| S7    | 270  | authentica\$3 and biometric and crypt\$5 and<br>@pd<"20040513"  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/09<br>07:25 |
| S8    | 725  | (authentication or authenticated or authenticated) and (biometric) and (cryptographic and encryption) and<br>@pd<"20040513" | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | AND              | ON      | 2008/07/09<br>07:29 |

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| S9  | 0   | generating authentication data for authenticating a physical object.dlm.               | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/09<br>07:45 |
| S10 | 0   | authenticating a physical object.dlm.  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/09<br>07:46 |
| S11 | 950 | physical object.dlm.   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/09<br>07:47 |
| S12 | 1   | "20070044139".pn.  | DERWENT   | ADJ | ON | 2008/07/09<br>11:47 |
| S13 | 1   | "5291560".pn.  | DERWENT   | ADJ | ON | 2008/07/09<br>15:08 |
| S14 | 1   | "5291560".pn.  | US-PGPUB;<br>USPAT  | ADJ | ON | 2008/07/09<br>15:23 |
| S15 | 0   | "2002/029341".pn.  | USPAT   | ADJ | ON | 2008/07/09<br>15:54 |
| S16 | 1   | "0029341".pn.  | USPAT   | ADJ | ON | 2008/07/09<br>15:56 |
| S17 | 0   | @pd="20020307" and frykholm-nikas.in.  | USPAT   | ADJ | ON | 2008/07/09<br>16:06 |
| S18 | 1   | @pd="20020307" and frykholm-nikas.in.  | US-PGPUB;<br>USPAT  | ADJ | ON | 2008/07/09<br>16:06 |
| S19 | 0   | wo1998/12670.pn.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO; JPO                  | ADJ | ON | 2008/07/09<br>16:36 |
| S20 | 26  | borza-stephen-j.in.  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO; JPO                  | ADJ | ON | 2008/07/09<br>16:38 |
| S22 | 0   | WO/1998/012670.ptpn.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO; JPO                  | ADJ | ON | 2008/07/09<br>16:47 |
| S24 | 0   | WO/1998/012670.ptan.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO; JPO                  | ADJ | ON | 2008/07/09<br>16:48 |
| S25 | 20  | borza-stephen\$.in. or freedman-gordan\$.in. and (biometric identification system).ti. | US-PGPUB;<br>USPAT  | ADJ | ON | 2008/07/10<br>09:32 |
| S26 | 20  | borza-stephen\$.in. or freedman-gordan\$.in. and (biometric identification system).ti. | US-PGPUB;<br>USPAT  | OR  | ON | 2008/07/10<br>09:32 |

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| S27 | 26    | borza-stephen\$.in. or<br>freedman-gordan\$.in. and<br>(biometric identification<br>system).ti. | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR  | ON | 2008/07/10<br>09:32 |
| S28 | 20    | (tuyls-pim or denteneer-<br>theodoru\$).in.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:21 |
| S29 | 21    | (tuyls-pim or denteneer-<br>theodoru\$ or Linnartz-Johan).<br>in.                               | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:21 |
| S30 | 25    | (tuyls-pim or denteneer-<br>theodoru\$ or Linnartz-Johan<br>or verbitskiy-evgeny).in.           | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:35 |
| S31 | 11303 | koninklijke adj philips<br>electronics.as.  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:47 |
| S32 | 1     | S29 not S28   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:49 |
| S33 | 4     | S30 not S29   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:50 |
| S34 | 0     | koninklijke adj philips<br>electronics.as. and<br>authentication data<br>generation method.ab.  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:54 |
| S35 | 1     | koninklijke adj philips<br>electronics.as. and<br>authentication data.ab.                       | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>09:55 |

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| S36 | 0     | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust) adj criterion and signal?to?noise?ratio and @PD<="20030521" | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:08 |
| S37 | 34976 | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) or (robustness or robust) adj criterion and signal?to?noise?ratio and @PD<="20030521"  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:09 |
| S38 | 1     | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust) adj criterion and signal?to?noise?ratio                     | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:10 |
| S39 | 1     | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust) and signal?to?noise?ratio                                   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:13 |
| S40 | 2827  | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust)   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:14 |
| S41 | 461   | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust) and @pd<"20030221"  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/14<br>11:15 |

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| S42 | 81     | (authentication or authenticating or authenticated) adj (system or method or module or application or software or program or device or apparatus) and (robustness or robust) and @pd<"20030221" and 380/,713/,726/.ccls. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2008/07/14 11:24 |
| S43 | 1502   | (380/277).CCLS   | US-PGPUB; USPAT; USOCR                                   | OR  | OFF | 2008/07/14 11:34 |
| S46 | 1038   | (380/44).CCLS  | US-PGPUB; USPAT; USOCR                                   | OR  | OFF | 2008/07/14 11:37 |
| S47 | 101157 | authentica\$4  | US-PGPUB; USPAT  | AND | ON  | 2008/07/22 08:46 |
| S48 | 2438   | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2)  | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | AND | ON  | 2008/07/22 08:55 |
| S49 | 0      | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".ccls. OR "713".ccls. OR "726".ccls.)  | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | AND | ON  | 2008/07/22 08:55 |
| S50 | 727    | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".clas. OR "713".clas. OR "726".clas.)  | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | AND | ON  | 2008/07/22 08:56 |
| S51 | 0      | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".clas. OR "713".clas. OR "726".clas.) AND (signal noise ration)  | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2008/07/22 09:05 |
| S52 | 0      | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".clas. OR "713".clas. OR "726".clas.) AND (signal\$1noise \$1ration)   | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2008/07/22 09:06 |
| S53 | 0      | (authentica\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".clas. OR "713".clas. OR "726".clas.) AND (signal\$1noise)   | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2008/07/22 09:06 |

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| S54 | 0  | (authenticat\$4 NEAR (method OR system OR mode) SAME biometric\$2) AND ("380".clas. OR "713".clas. OR "726".clas.) AND (help\$1data) | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>09:08 |
| S55 | 18 | ((robust\$4) SAME biometric \$2) AND ("380".clas. OR "713".clas. OR "726".clas.) AND (signal\$1 noise\$1 ratio)                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>09:32 |
| S56 | 60 | authentica\$4 SAME (signal\$1 noise\$1 ratio)  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>09:45 |
| S57 | 0  | authentica\$4 SAME (signal\$1 noise\$1 ratio)AND ("380", "713", "726").CLAS.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>11:06 |
| S58 | 0  | ("2007/0044139").URPN.   | USPAT   | AND | ON | 2008/07/22<br>11:07 |
| S59 | 0  | ("2007/0044139").URPN.   | USPAT   | AND | ON | 2008/07/22<br>11:08 |
| S60 | 3  | (authentication system with measurement procedure) AND ("380", "713", "726"). clas.  | USPAT   | AND | ON | 2008/07/22<br>11:26 |
| S64 | 0  | (cryptograph\$2 WITH one \$1way\$1function).clm.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | AND | ON | 2008/07/22<br>16:35 |
| S66 | 0  | (cryptograph\$3 SAME one \$1way\$1function).clm.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | AND | ON | 2008/07/22<br>16:35 |
| S67 | 0  | (cryptograph\$3 AND one \$1way\$1function).clm.  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | AND | ON | 2008/07/22<br>16:35 |

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| S68 | 0    | (cryptographic function AND one\$1way\$1function).dm.           | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>16:36 |
| S69 | 528  | (one way function).dm.  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>16:37 |
| S70 | 63   | (cryptograph\$2 WITH one way function).dm.                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/22<br>16:37 |
| S71 | 5468 | physical uncloneable function OR PUF or authentication protocol | US-PGPUB;<br>USPAT  | ADJ | ON | 2008/07/24<br>14:20 |
| S72 | 2151 | S71 AND ("380".clas. OR "713".clas. OR "726".clas.)             | US-PGPUB;<br>USPAT  | AND | ON | 2008/07/24<br>14:24 |
| S73 | 2151 | S72 and authenticat\$3  | US-PGPUB;<br>USPAT  | AND | ON | 2008/07/24<br>14:25 |
| S74 | 319  | S72 and robust\$4   | US-PGPUB;<br>USPAT  | AND | ON | 2008/07/24<br>14:26 |
| S75 | 0    | ("2007/0044139").URFN.  | USPAT   | AND | ON | 2008/07/28<br>13:30 |
| S76 | 612  | 726/2.ccls.   | USPAT   | AND | ON | 2008/07/28<br>13:38 |
| S77 | 5    | S76 and (generat\$4 near (authentication data))                 | USPAT   | ADJ | ON | 2008/07/28<br>14:08 |
| S78 | 0    | DAUGMAN-JOHN?.IN.   | USPAT   | ADJ | ON | 2008/07/28<br>16:05 |
| S79 | 2    | DAUGMAN.IN.   | US-PGPUB  | ADJ | ON | 2008/07/28<br>16:06 |
| S80 | 8    | DAUGMAN.IN.   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2008/07/28<br>16:09 |

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| S81 | 140351 | ((physical (undone OR undoneable) function) OR PUF) OR (authentication\$3 protocol\$1) OR (generat\$3 authentication data) OR (robust\$4 propert\$3) OR (biotech OR biotechnolog\$3) OR (noise\$1 contract OR noise\$1 contracting) OR (encryption algorithm\$1) OR (hash\$1key or hash\$1key value) OR (digital signature) OR (image analysis algorithm)             | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>08:38 |
| S82 | 140473 | ((physical (undone OR undoneable) function\$2) OR PUF) OR (authentication\$3 protocol\$1) OR (generat\$3 NEAR (authentication\$3 data)) OR (robust\$4 propert\$3) OR (biotech OR biotechnolog\$3) OR (noise\$1 contract OR noise\$1 contracting) OR (encrypt\$3 algorithm) OR (hash\$1key or hash\$1key value) OR (digital signature) OR (image analy\$4 algorithm)   | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>08:50 |
| S83 | 24048  | ((physical (undone OR undoneable) function\$2) OR PUF) OR (authentication\$3 protocol\$1) OR (generat\$3 NEAR (authentication\$3 data)) OR (robust\$4 propert\$3) OR (noise\$1 contract OR noise\$1 contracting) OR (encrypt\$3 algorithm) OR (hash\$1key or hash\$1key value) OR (digital signature) OR (image analy\$4 algorithm) AND (biotech OR biotechnolog\$3)  | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>08:52 |
| S84 | 23747  | ((physical (undone OR undoneable) function\$2) OR PUF) OR (authentication\$3 protocol\$1) OR (generat\$3 NEAR (authentication\$3 data)) OR (noise\$1 contract OR noise\$1 contracting) OR (encrypt\$3 algorithm) OR (hash\$1key or hash\$1key value) OR (digital signature) OR (image analy\$4 algorithm) AND (biotech OR biotechnolog\$3) AND (robust\$4 propert\$3) | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>08:54 |
| S85 | 0      | 726/2 726/9 726/20<br>369/24, 01,29,01-29,02<br>711/100 713/168-170,172.<br>COLS.   | US-PGPUB;<br>USPAT | AND | ON | 2008/07/29<br>08:59 |



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| S86 | 7585 | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS.   | US-PGPUB;<br>USPAT | AND | ON | 2008/07/29<br>08:59 |
| S87 | 4267 | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) OR (generat\$3<br>authentication data) OR<br>(biotech OR biotechnolog\$3)<br>OR (noise\$1contract OR noise<br>\$1contracting) OR<br>(encryption algorithm\$1) OR<br>(hash\$1key or hash\$1key<br>value) OR (digital signature)<br>OR (image analysis<br>algorithm))        | US-PGPUB;<br>USPAT | AND | ON | 2008/07/29<br>09:02 |
| S88 | 3014 | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) OR (generat\$3<br>authentication data) AND<br>(biotech OR biotechnolog\$3)<br>AND (noise\$1contract OR<br>noise\$1contracting) AND<br>(encryption algorithm\$1) OR<br>(hash\$1key or hash\$1key<br>value) AND (digital signature)<br>OR (image analysis<br>algorithm))     | US-PGPUB;<br>USPAT | AND | ON | 2008/07/29<br>09:03 |
| S89 | 0    | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) AND (generat\$3<br>authentication data) AND<br>(biotech OR biotechnolog\$3)<br>AND (noise\$1contract OR<br>noise\$1contracting) AND<br>(encryption algorithm\$1)<br>AND (hash\$1key or hash<br>\$1key value) AND (digital<br>signature) AND (image<br>analysis algorithm)) | US-PGPUB;<br>USPAT | AND | ON | 2008/07/29<br>09:04 |

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| S90 | 571  | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) OR (generat\$3<br>authenticat\$3 data) AND<br>(biotech OR biotechnolog\$3)<br>AND (noise\$1contract OR<br>noise\$1contracting) AND<br>(encryption algorithm\$1)<br>AND (hash\$1key or hash<br>\$1key value) AND (digital<br>signature) AND (image<br>analysis algorithm))       | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>09:05 |
| S91 | 0    | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) AND (generat\$3<br>authenticat\$3 data) AND<br>(biotech OR biotechnolog\$3)<br>AND (noise\$1contract OR<br>noise\$1contracting) AND<br>(encryption algorithm\$1)<br>AND (hash\$1key or hash<br>\$1key value) AND (digital<br>signature) AND (image<br>analysis algorithm))      | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>09:05 |
| S92 | 571  | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) OR (generat\$3<br>authenticat\$3 data) AND<br>(biotech OR biotechnolog\$3)<br>AND (noise\$1 NEAR4 contract<br>\$3) AND (encryption<br>algorithm\$1) AND (hash<br>\$1key or hash\$1key value)<br>AND (digital signature) AND<br>(image analysis algorithm))                      | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>09:06 |
| S93 | 571  | (726/2 726/9 726/20<br>369/24.01,29.01-29.02<br>711/100 713/168-170,172).<br>CCLS. AND ((authenticat\$3<br>protocol\$1) OR (generat\$3<br>NEAR5 (authenticat\$3 data))<br>AND (biotech OR bio\$1<br>technolog\$3) AND (noise\$1<br>NEAR4 contract\$3) AND<br>(encryption NEAR2 algorithm<br>\$1) AND (hash\$1key or hash<br>\$1key value) AND (digital<br>signature) AND (image<br>analysis algorithm)) | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>09:21 |
| S94 | 1065 | 713/186.ccls.   | US-PGPUB;<br>USPAT | ADJ | ON | 2008/07/29<br>14:50 |

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|------|-----|--|--------------------------------|-----|----|---------------------|
| S95  | 624 | 713/186.ccls. AND (biometric OR biotech\$) And (authentical\$3)                              | US-PGPUB;<br>USPAT             | ADJ | ON | 2008/07/29<br>14:59 |
| S96  | 0   | ("2006/0047970").URFN.   | USPAT                          | AND | ON | 2008/07/30<br>07:16 |
| S97  | 1   | "6401206".pn.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/30<br>11:49 |
| S99  | 0   | "10056982".ap.   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/30<br>15:30 |
| S100 | 5   | "056982".ap.   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/30<br>15:31 |
| S101 | 0   | (tokens identification system for authorization\$).ti.                                       | US-PGPUB;<br>USPAT             | ADJ | ON | 2008/07/30<br>15:49 |
| S102 | 1   | "056982".apn.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/30<br>15:52 |
| S103 | 0   | "10056982".apn.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/30<br>15:53 |
| S104 | 0   | "10056982".ap.   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:21 |
| S105 | 5   | "056982".ap.   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:21 |
| S106 | 0   | hoffman-ned-\$in.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:25 |
| S107 | 152 | hoffman-n\$.in.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:25 |
| S108 | 42  | hoffman-n\$.in. and Tokenless  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:26 |
| S109 | 0   | "0105725".ap.  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:36 |
| S110 | 5   | "105725".ap.   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:36 |
| S111 | 0   | "US-20030105725-A1.did"  | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:38 |
| S112 | 0   | "US-20030105725-A\$.did"   | US-PGPUB;<br>USPAT             | AND | ON | 2008/07/31<br>07:38 |
| S113 | 0   | "US-20030105725-A\$.did"   | US-PGPUB;<br>USPAT;<br>DERWENT | AND | ON | 2008/07/31<br>07:38 |
| S114 | 2   | US-20030105725-A\$.did.  | US-PGPUB;<br>USPAT;<br>DERWENT | AND | ON | 2008/07/31<br>07:39 |
| S115 | 6   | "241374".ap.   | US-PGPUB;<br>USPAT;<br>DERWENT | AND | ON | 2008/07/31<br>08:01 |
| S120 | 180 | 713/186.ccls. AND @ad<"20030521" AND (sampl \$3 OR vector OR (data adj point)) AND biometric | US-PGPUB;<br>USPAT             | ADJ | ON | 2008/07/31<br>09:52 |
| S121 | 1   | "6697947".pn.  | US-PGPUB;<br>USPAT             | ADJ | ON | 2008/07/31<br>10:57 |

|      |       |  |                           |     |     |                     |
|------|-------|--|---------------------------|-----|-----|---------------------|
| S122 | 1     | "6535622".pn.  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/07/31<br>11:13 |
| S123 | 379   | 713/186.ccls. AND<br>@ad<"20030521" AND<br>(biometric or finger\$1 print)  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/07/31<br>11:44 |
| S126 | 1     | "6411728".pn.  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/07/31<br>11:49 |
| S127 | 1     | 713/186.ccls. AND<br>@ad<"20030521" AND (finger<br>\$1 print near4 select\$3)  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/07/31<br>11:54 |
| S128 | 1     | "6314196".pn.  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/07/31<br>16:05 |
| S132 | 6     | "557628".ap.   | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/01<br>08:28 |
| S133 | 1     | "6314196".pn.  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/04<br>07:20 |
| S134 | 319   | (382/125).CCLS.  | US-PGPUB;<br>USPAT; USOCR | OR  | OFF | 2008/08/05<br>15:39 |
| S135 | 301   | 382/125.ccls. AND fingerprint  | US-PGPUB;<br>USPAT        | AND | ON  | 2008/08/05<br>15:41 |
| S136 | 15    | 382/125.ccls. AND fingerprint<br>and (noise near signal)   | US-PGPUB;<br>USPAT        | AND | ON  | 2008/08/05<br>15:42 |
| S137 | 1     | "5717786".pn.  | US-PGPUB;<br>USPAT        | AND | ON  | 2008/08/06<br>12:59 |
| S138 | 35141 | (enhanc\$3 OR refin\$3 OR<br>improv\$3) WITH ((signal<br>NEAR3 noise NEAR3 ratio) OR<br>(signal NEAR quality))                             | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/06<br>14:06 |
| S139 | 110   | (enhanc\$3 OR refin\$3 OR<br>improv\$3) WITH ((signal<br>NEAR3 noise NEAR3 ratio) OR<br>(signal NEAR quality)) SAME<br>(subset)            | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/06<br>14:07 |
| S140 | 68    | S139 AND @AD<"20030521"  | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/06<br>14:51 |
| S141 | 46    | (enhanc\$3 OR refin\$3 OR<br>improv\$3) WITH ((signal<br>NEAR3 noise NEAR3 ratio) OR<br>(signal NEAR quality)) WITH<br>(transfer function) | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/06<br>15:56 |
| S142 | 2633  | (enhanc\$3 OR refin\$3 OR<br>improv\$3) WITH ((signal<br>NEAR3 noise NEAR3 ratio) OR<br>(signal NEAR quality)) WITH<br>(filter)            | US-PGPUB;<br>USPAT        | ADJ | ON  | 2008/08/06<br>16:12 |
| S143 | 1830  | S142 AND @AD<"20030521"  | US-PGPUB;<br>USPAT        | AND | ON  | 2008/08/06<br>16:14 |
| S144 | 3     | S143 AND (finger adj print)  | US-PGPUB;<br>USPAT        | AND | ON  | 2008/08/06<br>16:46 |

|      |      |  |                    |     |    |                     |
|------|------|--|--------------------|-----|----|---------------------|
| S145 | 2634 | (enhanc\$3 OR refin\$3 OR improv\$3) WITH ((signal NEAR3 noise NEAR3 ratio) OR (signal NEAR quality)) WITH (filter)  | US-PGPUB;<br>USPAT | ADJ | ON | 2008/08/07<br>08:12 |
| S146 | 1830 | S145 AND @AD<"20030521"  | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:12 |
| S147 | 2084 | (enhanc\$3 OR refin\$3 OR improv\$3) WITH ((signal NEAR3 noise NEAR3 ratio) OR (signal NEAR quality) OR SNR) WITH (filter OR transformation) AND @AD<"20030521"  | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:21 |
| S148 | 424  | S147 AND (finger\$1 print OR face OR palm OR iris OR biotech)  | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:25 |
| S149 | 18   | (enhanc\$3 OR refin\$3 OR improv\$3) WITH ((signal NEAR3 noise NEAR3 ratio) OR (signal NEAR quality) OR SNR) WITH (filter OR transformation) SAME (finger \$1 print OR face OR palm OR iris OR biotech) AND @AD<"20030521"           | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:28 |
| S152 | 67   | (enhanc\$3 OR refin\$3 OR improv\$3) WITH ((signal NEAR3 noise NEAR3 ratio) OR (signal NEAR quality OR quality) OR SNR) WITH (filter OR transformation) SAME (finger\$1 print OR face OR palm OR iris OR biotech) AND @AD<"20030521" | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:40 |
| S153 | 0    | L11-L8   | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:43 |
| S154 | 49   | S152 not S149  | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:43 |
| S155 | 1    | "5799098".pn.  | US-PGPUB;<br>USPAT | AND | ON | 2008/08/07<br>08:56 |
| S157 | 4    | "382"/\$.cds. AND (finger\$ print) with (linear near (transformation) OR filter)   | US-PGPUB;<br>USPAT | ADJ | ON | 2008/08/07<br>10:11 |
| S158 | 0    | "382"/\$.cds. AND (finger\$ print) SAME (linear near4 function) SAME (transformation OR filter)  | US-PGPUB;<br>USPAT | ADJ | ON | 2008/08/07<br>10:13 |
| S159 | 0    | "382"/\$.cds. AND (finger\$ print) SAME (linear near4 function) AND (transformation OR filter)   | US-PGPUB;<br>USPAT | ADJ | ON | 2008/08/07<br>10:14 |

|      |        |   |   |     |     |                  |
|------|--------|---|---|-----|-----|------------------|
| S160 | 5      | "382"/\$ cds. AND (finger\$ print) AND (linear near4 function) AND (transformation OR filter) | US-PGPUB; USPAT                                   | ADJ | ON  | 2008/08/07 10:14 |
| S162 | 1      | "6035398".pn.   | US-PGPUB; USPAT                                   | AND | ON  | 2008/08/07 10:20 |
| S163 | 1      | "6233348".pn.   | US-PGPUB; USPAT                                   | AND | ON  | 2008/08/07 11:00 |
| S164 | 1      | "5799098".pn.   | US-PGPUB; USPAT                                   | AND | ON  | 2008/08/07 11:09 |
| S165 | 1      | ("4947442").PN.   | US-PGPUB; USPAT; USOCR                            | AND | ON  | 2008/08/07 11:10 |
| S166 | 20     | ("5799098").URPN.   | USPAT   | AND | ON  | 2008/08/07 11:10 |
| S167 | 1      | "6466686".pn.   | USPAT   | AND | ON  | 2008/08/07 11:26 |
| S170 | 2      | "557628".apn.   | US-PGPUB; USPAT                                   | AND | ON  | 2008/08/07 12:38 |
| S171 | 13     | linear transformation with low pass   | US-PGPUB; USPAT                                   | ADJ | ON  | 2008/08/07 16:48 |
| S172 | 5      | linear transformation with noise reduction  | US-PGPUB; USPAT                                   | ADJ | ON  | 2008/08/07 16:52 |
| S173 | 0      | delta?contracting?function  | USPAT   | OR  | OFF | 2009/01/23 14:20 |
| S174 | 0      | delta near2 contracting near2 function  | USPAT   | OR  | OFF | 2009/01/23 14:21 |
| S175 | 0      | delta\$1contracting   | USPAT   | OR  | OFF | 2009/01/23 14:22 |
| S176 | 395169 | delta   | US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR  | OFF | 2009/01/23 14:22 |
| S177 | 0      | delta?contracting?function  | US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR  | ON  | 2009/01/23 14:27 |
| S178 | 0      | delta?contracting?function  | US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2009/01/23 14:27 |
| S179 | 11     | delta near2 contracting near2 function  | US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB | ADJ | ON  | 2009/01/23 14:27 |

|      |         |   |   |     |    |                     |
|------|---------|---|---|-----|----|---------------------|
| S180 | 214     | fisher\$1 discriminant  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/23<br>14:42 |
| S181 | 1       | fisher\$1 discriminant<br>transformation  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/23<br>14:42 |
| S182 | 0       | (insert near3 criteria near4<br>authentication data)                                    | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>09:42 |
| S183 | 1075655 | (insert or (embed or<br>embeded) near3 criteria<br>near4 authentication data)           | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>09:43 |
| S184 | 0       | ((insert or (embed or<br>embeded)) near3 criteria<br>near4 authentication data)         | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>09:44 |
| S185 | 0       | ((insert or (embed or<br>embeded)) near3 criteria<br>near4 authentication data)         | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>09:44 |
| S186 | 0       | ((insert or embed\$5) near3<br>(criteria or help\$2 data)<br>near4 authentication data) | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>09:45 |
| S187 | 2       | "7093131".pn.   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>13:00 |
| S188 | 2       | "6314196".pn.   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>16:52 |
| S189 | 0       | (convert or transfer) near2<br>(binary near2 code) near5<br>(positive near negative)    | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>17:12 |
| S190 | 35      | (convert or transfer) near5<br>binary near5 positive near5<br>negative                  | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>JBM_TDB | ADJ | ON | 2009/01/27<br>17:13 |

|      |     |   |   |     |    |                     |
|------|-----|---|---|-----|----|---------------------|
| S191 | 2   | "6314196".pn.   | US-PGPUB;<br>USPAT; FPRS;<br>EPO; JPO;<br>DERWENT;<br>IBM_TDB | ADJ | ON | 2009/01/28<br>16:21 |
| S192 | 1   | "20070044139"   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/06<br>17:06 |
| S193 | 278 | "5291560"   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/06<br>17:39 |
| S194 | 1   | "6314196".pn.   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>14:16 |
| S195 | 568 | (hash\$4 with finger\$1print)<br>same (stor\$4 or sav\$4)   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:42 |
| S196 | 375 | (hash\$4 with finger\$1print)<br>same (stor\$4 or sav\$4) same<br>(rule or guideline or criteria or<br>(help\$2 data))  | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:44 |
| S197 | 242 | (hash\$4 with (finger\$1print<br>or bio\$6)) same (stor\$4 or sav<br>\$4) same (rule or guideline or<br>criteria or (help\$2 data)) and<br>@ad<"20040513"                   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:45 |
| S198 | 169 | (hash\$4 with (finger\$1print<br>or bio\$6)) same (stor\$4 or sav<br>\$4) same (rule or guideline or<br>criteria or (help\$2 data)) and<br>(not BIOS) and<br>@ad<"20040513" | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:53 |
| S199 | 73  | S197 not S198   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:53 |
| S200 | 169 | S197 not S199   | US-PGPUB;<br>USPAT  | OR  | ON | 2009/07/07<br>15:55 |

7/ 8/ 2009 2:15:14 PM

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